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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,544	12/11/2003	Blake C. Chenevert	EH-10967 (03-437)	7742

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NEW HAVEN, CT 06510

EXAMINER

NDUBIZU, CHUKA CLEMENT

ART UNIT	PAPER NUMBER
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3749

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/733,544

Applicant(s)

CHENEVERT ET AL.

Examiner

Chuka C. Ndubizu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on through 05/20/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 52005,32904,121103.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunter 5,494,004. Hunter teaches the invention as claimed (see figs. (1– 11)), an apparatus for cleaning a surface within a vessel, the apparatus comprising: an elongate combustion conduit 21, 31 extending from an upstream end 103 to a downstream end 35 associated with an aperture 81 in a wall of the vessel 83 and positioned to direct a shock wave toward said surface (column 6 line 47,48); and means for movably supporting the combustion conduit (rail and 151R and 151F) at one or more locations along a length of the combustion conduit (column 3 line 56-67); (claim 2) wherein the combustion conduit passes above a first external tube bundle and below a second external tube bundle 293, 291, Fig 8 ; (claim 3) the combustion conduit comprises at least one curved portion 33; (claim 7) wherein a nozzle portion 229 of the combustion conduit is parallel to but offset from a second portion of the combustion conduit (see Fig. 7); (claim 8) said second portion (rest of the conduit other than 229) forms a majority of a length of the combustion conduit (fig. 7); (claim 9) wherein the combustion conduit comprises a plurality of segments 21 31 assembled end-to-end; wherein the apparatus further comprises, braces 181 spanning a length of at least one of the

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segments; wherein there are at least first 181 and second 181 such braces opposite each other and coupled to each other by at least one clamp 183 grasping a body of an associated one of the segments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Chappell 3,216,046. Hunter teaches the invention as claimed and as discussed above.

However, Hunter does not teach an apparatus, wherein the braces are external; wherein there are third and fourth such braces respectively aligned end-to-end with the first and second external braces and secured thereto and extending relative thereto at a non-right and non-zero angle; wherein there is a support structure integral with the wall;

and the means includes at least one hanger supporting the combustion conduit from the support structure; and wherein one or more constant load hangers support the combustion conduit at one or more locations; wherein the hangers engage first portions of the combustion conduit; and a second portion of the combustion conduit downstream of the first is held relative to the vessel so as to vertically move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such vertical movement.

Chappell teaches in a an apparatus for cleaning a surface within a vessel (figs. 1-8), the apparatus including external braces 92 Fig 3; wherein there are third 68 and fourth 68 such braces respectively aligned end-to-end with the first and second external braces 92 and secured thereto (by 128) and extending relative thereto at a non-right and non-zero angle (fig 3); wherein there is a support structure 10 integral with the wall; and the means includes at least one hanger 28 supporting the combustion conduit from the support structure; and wherein one or more constant load hangers 28 support the combustion conduit at one or more locations (column 4 line 23-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hunter's cleaning apparatus to include all the limitations taught by Chappell and recited above in order to provide an improved a cleaning apparatus of the long retracting type, which is durable in operation, versatile in use and economical to manufacture as taught by Chappell (column 3 line 4-7).

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Menegaz et al 4,095,935. Hunter teaches the invention as claimed and as discussed above.

However, Hunter does not teach, a cleaning apparatus, wherein the support means comprises one or more spring hangers; wherein the spring hangers engage first portions of the combustion conduit; and a second portion of the combustion conduit downstream of the first is held relative to the vessel so as to vertically move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such vertical movement; wherein at least one of the spring hangers engages the conduit via one or more snubbers.

Menegaz teaches in a furnace (fig 1, 4,5), a furnace comprising one or more spring hangers 144 (with spring 150) for a catalytic tube 34; wherein the spring hangers engage first portions of the combustion tube; and a second portion of the combustion tube downstream of the first is held relative to the vessel so as to move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such movement (column 6 line 22-33); wherein at least one of the spring hangers engages the conduit via one or more snubbers 34a.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hunter's support means by including all the limitations taught by Menegaz and recited above in order to provide a support capable of accommodating expansion due to large thermal effects as taught by Menegaz (column 6 line 26-31).

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4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Chappell and further in view of Menegaz. Hunter in view of Chappell teaches the invention as claimed and as discussed above.

However, Hunter in view of Chappell does not teach a conduit support wherein the hangers engage first portions of the combustion tube; and a second portion of the combustion conduit downstream of the first is held relative to the vessel so as to vertically move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such vertical movement.

Menegaz teaches in a furnace (fig 1, 4,5), a furnace comprising one or more spring hangers 144 (with spring 150) for a catalytic tube 34; wherein the spring hangers engage first portions of the combustion tube; and a second portion of the combustion tube downstream of the first is held relative to the vessel so as to move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such movement (column 6 line 22-33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hunter in view of Chappell's support means by including all the limitations taught by Menegaz and recited above in order to provide a support capable of accommodating expansion due to large thermal effects as taught by Menegaz (column 6 line 26-31).

Conclusion

The prior art made of record in the attached USPTO 892 and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuka C. Ndubizu whose telephone number is 571-272-6531. The examiner can normally be reached on Monday - Friday 8.30 - 4.30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Josiah Cocks can be reached on 571-272-4874. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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